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# Heart Failure and Cardiomyopathies

## PILOT STUDY OF THE RELATIONSHIP OF AMBIENT COPEPTIN TO THE AQUARETIC EFFECTS OF TOLVAPTAN IN PATIENTS WITH HEART FAILURE

Poster Contributions
Poster Hall B1
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**Background:** Tolvaptan, an arginine vasopressin (AVP) antagonist, may be a novel therapy for congestive heart failure (CHF) but AVP activation is not uniform and results have been variable in previous trials of unselected CHF patients. Copeptin, c-terminal pre-provasopressin, reflects AVP activation. We hypothesized patients with higher copeptin may respond better to tolvaptan.

**Methods:** This pilot study investigated 20 stable CHF outpatients (Pts) with reduced LVEF (≤40) selected by targeting upper or lower quartile copeptin levels at the screening visit (10 each). One 30 mg dose of tolvaptan was given with body weight, fluid intake and urine output monitored in a research unit for 24 hours. Inpatient copeptin levels were blinded until post study analysis. Pts were analyzed by a pre-specified baseline copeptin cut point (≥10 versus <10 pmol/L).

**Results:** Pts were 55% female, 55% African-American with serum sodium (mean±SD) 141±2.9 meq/L and serum creatinine 1.1±0.3 mg/dL. Pts were on chronic diuretic (95% on loop daily dose furosemide equivalent 84±86 mg). There was a significant negative correlation between baseline copeptin and change in body weight (baseline to 24 hours) post tolvaptan (r=-0.47, p=0.039). Body weight declined more after tolvaptan in Pts with baseline copeptin ≥ 10 versus < 10 pmol/L.

**Conclusion:** These pilot results suggest a possible association between higher copeptin level and greater response to tolvaptan in CHF Pts with reduced LVEF. These findings warrant further investigation.

| Changes in body weight and fluid status after tolvaptan by baseline copeptin | | | | |
|---|---|---|---|---|
| Study Group | All Patients | Copeptin ≥ 10 pmol/L | Copeptin < 10 pmol/L | *P value |
| N | 20 | 10 | 10 | |
| Baseline Copeptin (pmol/L) | 13.1 ± 9.7 | 20.5 ± 8.7 | 5.7 ± 1.9 | <0.001 |
| Change in Body Weight (Kg) | -0.8 ± 1.1 | -1.3 ± 1.0 | -0.4 ± 1.0 | 0.035 |
| Net Output (mL) | 1360 ± 1881 | 2091 ± 1662 | 630 ± 1876 | 0.089 |
| Total Output (mL) | 6141 ± 2072 | 6498 ± 2328 | 5784 ± 1835 | 0.853 |
| Total Input (mL) | 4780 ± 1664 | 4406 ± 1398 | 5154 ± 1893 | 0.393 |
| Values are mean ± SD. *P Values are for comparison of copeptin groups by nonparametric analysis. | | | | |